

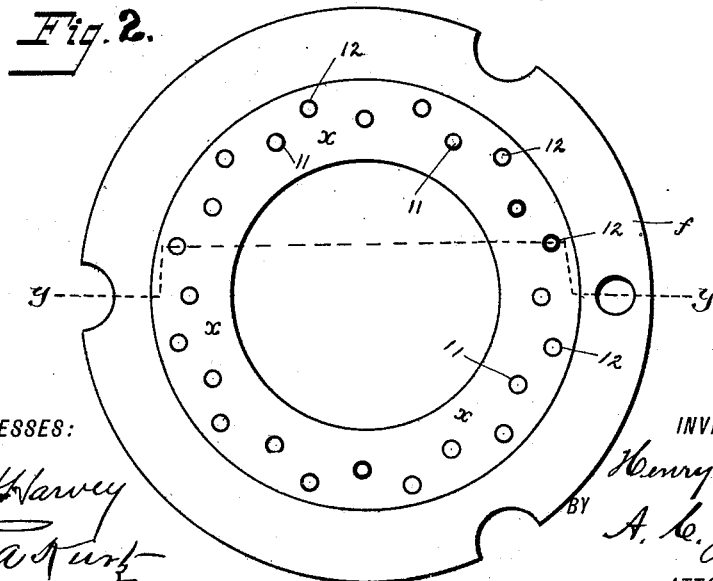
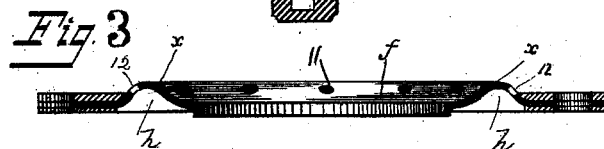
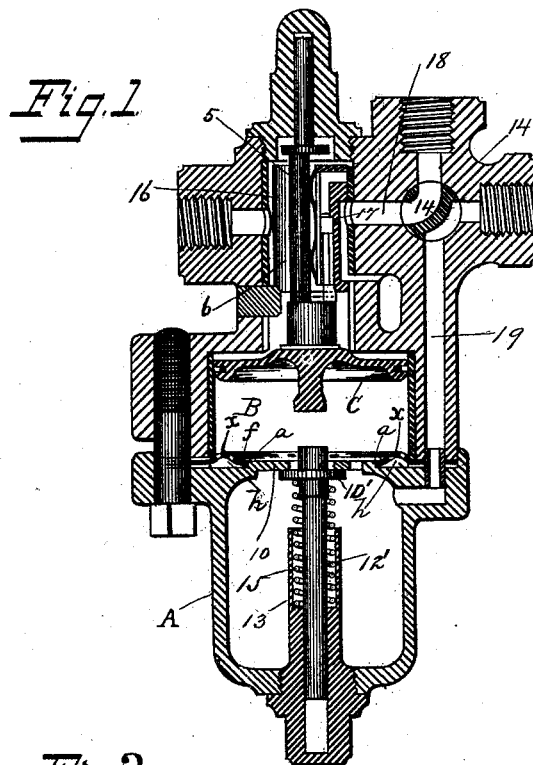
(No Model.)

H. FUELLER.

SEAT FOR PISTONS OF TRIPLE VALVES.

No. 422,392.

Patented Mar. 4, 1890.



WITNESSES:

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SEAT FOR PISTONS OF TRIPLE VALVES.

SPECIFICATION forming part of Letters Patent No. 422,392, dated March 4, 1890.

Application filed October 11, 1889. Serial No. 326,757. (No model.)

To all whom it may concern:

Be it known that I, HENRY FUELLER, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Seats for Pistons of Triple Valves; and I do hereby declare the following to be a full, clear, and exact description thereof.

In the operation of the triple valve that is at present used in operating the air-brakes of railway-cars the piston when it is seated upon the packing-ring, as a rule, is hard to release and force back on account of the diminished area of air-space, and it is often the case that the force of air in the reservoir is not sufficient to release the piston, and in that case the engineer or other person has to do it by force.

My invention relates to an improvement in piston-seats especially adapted to the triple valve used in connection with air-brakes; and it consists of an annular sheet-metal ring or gasket provided with a concentric groove on one side and a corresponding concentric elevation on the opposite side, the same being perforated for the inlet and outlet of air to and under the piston, whereby an increased area of air-space is formed for forcing back the piston.

To enable others skilled in the art with which my invention is most nearly connected to make and use, I will proceed to describe its construction and operation.

In the accompanying drawings, which form part of my specification, Figure 1 is a vertical section of the ordinary triple valve with my improvement applied thereto. Fig. 2 is a plan view of the packing-ring, showing the perforations for the inlet and outlet of air. Fig. 3 is a vertical transverse sectional view of the annular seat or ring for the piston on the same scale as shown in Fig. 2, the section being taken on the dotted line *y y* of Fig. 2.

Like numerals of reference denote corresponding parts in all the figures of the drawings.

In order that my invention may be more readily understood by those skilled in the art to which it relates, I have shown the same in connection with an ordinary piston-valve of an automatic air-brake.

In Fig. 1 of the drawings, A designates the drain-cup of a reservoir or chamber B, which is located above said cup and communicates with the same through an opening in the diaphragm 10, that separates the reservoir B from the drain-cup A, said opening being normally closed by a valve 10', which valve is carried by a vertically-movable stem 12, operating in a hollow seat 13, located in the base of the drain-cup, a coiled retracting-spring 15 being interposed between said valve 10' and the hollow seat, in which operates the valve-stem 12'.

C designates the piston-valve, which is located in the chamber or reservoir B, and this piston-valve C is carried by a vertical valve-stem 5, said stem operating in a vertical chamber 16, formed in the upper part of the valve-shell above the chamber or reservoir B. Air is admitted to this chamber 16 by a passage 18, and over the outlet of this passage 18 operates a sliding spring-pressed valve 17, that is located within the vertical chamber 16 and moves or reciprocates with the stem 5 of the piston-valve C, as is obvious.

14 designates the four-way cock, by which air can be permitted to pass into the passages 18 and 19, the latter passage 19 leading into the drain-cup A, as shown, while the former passage 18 opens into the vertical chamber 16.

It will be understood that no novelty is herein claimed on the ordinary form of the automatic piston-valve.

I will now proceed to a detailed description of my improvement, which is shown in position within the reservoir or chamber B in Fig. 1, and is shown separately in Figs. 2 and 3.

The drain-cup A is provided with a seat *a*, and this seat is perforated for the passage of air from the drain-cup A into the reservoir B. On this seat *a* is placed the piston-seat *f* of my invention, and this piston-seat comprises an annular sheet-metal packing-ring having a central opening. When this piston-seat is placed in proper position in the bottom of the reservoir or chamber B, or on the seat *a* at the top of the drain-cup A, the seat *a* fits or projects into the central opening in the annular piston-seat *f* and serves to assist in holding said piston-seat in place. The sheet-metal packing-ring or piston-seat *f* is struck

up to form an annular recess or groove *h* on the lower side of said seat and a corresponding elevation *x* on the upper side of the seat. This struck-up or elevated portion *x* of the annular piston-seat is provided with two series of openings 11 and 12, which openings are arranged in different vertical planes, and constitute, respectively, the air-inlet openings and the air-outlet openings to the annular recess or groove *h* on the under side of the piston-seat.

The operation is as follows: Air enters from the main pipe through the four-way cock 14 into the drain-cup A, and entering the chamber B it will flow down through the opening or perforation 11 into the concentric groove *h* of the packing-ring *f* and out through the perforations 12 under the piston-valve C, and through the medium of the increased air area the piston will be easily and rapidly released and forced back.

By the old method of packing-rings, which are usually made of gum or leather, the piston when seated has a tendency to stick, on account of a vacuum being formed, and it requires considerable force to release it; but in my improved packing-ring the piston will seat itself upon the ridged portion *x* of the packing-ring, and the space formed beneath it will easily and rapidly force the piston C back.

The construction of the valve in all its parts is the same as the ordinary triple valve now in use, except the packing-ring. Therefore I do not claim anything as to the construction of the valve; but

What I do claim is—

1. In a seat for pistons of triple valves, the

combination, with a cylinder or cup having a seat, of an annular piston-seat fitted on the seat of the cylinder, and having the ridge or elevated portion, which forms an annular groove or recess between the seat of the cylinder and the piston-seat, the latter being provided with air inlet and outlet openings, substantially as and for the purpose described.

2. The combination, with a cylinder having an annular seat surrounding the air-inlet, of a piston-seat fitted on said annular seat, and consisting of an annular sheet-metal ring provided with a concentric groove or recess on its lower side and an elevated or ridged portion on its upper side, the elevated portion of the piston-seat having the air inlet and outlet openings formed therein, substantially as described.

3. The combination, with a cylinder having an annular seat surrounding the air-inlet, of a piston-seat fitted on said annular seat, and consisting of an annular sheet-metal ring, which is struck up to form a ridged or elevated portion on its upper side, and a corresponding groove or recess on the lower side, the struck-up portion of the seat being provided with a series of air-inlet and air-outlet openings, substantially as described.

In testimony whereof I have hereunto set my hand this 18th day of September, A. D. 1889.

HENRY FUELLER.

Witnesses:

A. C. JOHNSTON,
C. S. JOHNSTON.